

WHAT IS CLAIMED IS:

1 1. A digital signal processing apparatus comprising:
2 an A/D converter for converting an analog input signal
3 into a digital signal;
4 a digital filter for performing half-band processing
5 to a sampling output of a digital signal outputted by said
6 A/D converter and for attenuating a frequency component
7 other than a predetermined normal band from a frequency
8 component included in the sampling output; and
9 an anti-aliasing circuit for suppressing or removing
10 noise having an aliasing band, which is caused by the half-
11 band processing in said digital filter, by using a sign
12 signal outputted from said digital filter.

1 2. The apparatus according to claim 1, wherein said
2 anti-aliasing circuit determines whether the output from
3 said digital filter, which is subjected to said half-band
4 processing, is a pass signal having the normal band or a
5 pass signal having the aliasing signal, based on a changing
6 period of the sign signal outputted from said digital
7 filter, and suppresses or removes only the pass signal
8 having the aliasing band.

1 3. The apparatus according to claim 1, wherein said
2 anti-aliasing circuit comprises:
3 a period measuring circuit for measuring a changing

4 period of the sign signal outputted by said digital filter;

5 a threshold holding circuit for holding a period of an
6 intermediate frequency between the normal band and the
7 aliasing band;

8 a comparator for comparing and determining whether or
9 not the period measured by said period measuring circuit is
10 larger than the threshold which is set to said threshold
11 holding circuit and for outputting a shift control signal
12 when it is determined that the period measured by said
13 period measuring circuit is not larger than the threshold;
14 and

15 a shift register for shifting a signal which is
16 inputted from said digital filter and is stored, based on
17 said shift control signal, and for suppressing an amplitude
18 of the aliasing noise.

1 4. The apparatus according to claim 3, wherein said
2 anti-aliasing circuit further comprises a shift value
3 setting register, to which the number of shift bits is set
4 when the signal, which is inputted from said digital filter
5 and is stored, is subjected to shift processing by said
6 shift register.

1 5. The apparatus according to claim 3, wherein said
2 anti-aliasing circuit further comprises a delay circuit for
3 delaying the output from said digital filter by a delay
4 time which is taken by the measurement by said period

5 measuring circuit and the comparison calculation by said
6 comparator.

1 6. The apparatus according to claim 1, wherein said
2 anti-aliasing circuit comprises:

3 a period measuring circuit for measuring a changing
4 period of the sign signal which is outputted by said
5 digital filter;

6 a threshold holding circuit for holding a period of an
7 intermediate frequency between the normal band and the
8 aliasing band;

9 a comparator for comparing and determining whether or
10 not the period measured by said period measuring circuit is
11 larger than the threshold set to said threshold holding
12 circuit and for outputting a clear signal when it is
13 determined that the period is not larger than the
14 threshold; and

15 a delay circuit for delaying the output from said
16 digital filter by a delay time which is taken by the
17 measurement of said period measuring circuit and the
18 comparison calculation of said comparator and for erasing a
19 signal during delay processing when said clear signal is
20 inputted.

1 7. A digital signal processing apparatus comprising:

2 an A/D converter for converting an analog input signal
3 into a digital signal;

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4 a digital filter for performing half-band processing
5 to a sampling output of a digital signal outputted by said
6 A/D converter and for attenuating a frequency component
7 other than a predetermined normal band from a frequency
8 component included in the sampling output;

9 an edge-detection circuit for detecting an edge of a
10 sign signal which is outputted by said digital filter and
11 for generating a set pulse;

12 a period measuring circuit for measuring a changing
13 period of the sign signal which is outputted by said
14 digital filter;

15 a threshold holding circuit for holding a period of an
16 intermediate frequency between a normal band and an
17 aliasing band;

18 a comparator for comparing and determining whether or
19 not the period measured by said period measuring circuit is
20 larger than the threshold held by said threshold holding
21 circuit and for outputting a reset pulse when it is
22 determined that the period is not larger than the
23 threshold; and

24 a detection register for inputting said set pulse so
25 as to be in a set state and outputting a first level and
26 for inputting said reset pulse so as to be in said reset
27 state and outputting a second level.

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